

**REMARKS/ARGUMENTS**

The Office Action mailed November 3, 2004, has been received and reviewed. Claims 1-19 are currently pending in the application. Claims 1-19 stand rejected. Applicants have amended claim 1 and respectfully request reconsideration of the application in light of the amendments and arguments presented herein.

**35 U.S.C. § 102(e) Anticipation Rejections**

**Anticipation Rejection Based on U.S. Patent Application Publication No. 2003/0143344 A1 to Yau et al.**

Claims 1-15 and 17-19 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application Publication No. 2003/0143344 A1 to Yau et al. ("Yau"). Applicants respectfully traverse this rejection, as hereinafter set forth.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v. Union Oil Co. of California*, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989).

Yau discloses an ink jet recording element that includes a support, a fusible, porous, image-receiving layer, and an ink-retaining layer. Yau at paragraphs [0013] and [0029]. The image-receiving layer includes non-porous polymeric particles that have a core/shell structure, which includes a polymeric hydrophobic core covered with a polymeric hydrophobic shell. *Id.* at paragraph [0013]. The ink-retaining layer contains organic and inorganic particles. *Id.* at paragraph [0029]. When ink is applied to the ink jet recording element, the ink is alleged to be rapidly absorbed. *Id.* at paragraph [0033]. The resulting image is alleged to be dry immediately after the ink jet recording element exits the printer. *Id.* at paragraph [0033]. Yau also discloses that samples printed on the ink jet recording element are fused between heated pressurized rollers. *Id.* at paragraph [0092].

**Claims 1-8**

Yau does not expressly or inherently describe each and every element of amended claim 1 and, therefore, does not anticipate claim 1. Specifically, Yau does not expressly or inherently describe the element of "a colorant-receiving layer comprising core-shell polymer

particles having a hydrophilic shell and a fusible hydrophobic core.” Contrary to the Examiner’s assertions on p. 2 of the Office Action dated November 3, 2004, Yau does not disclose that the core/shell structure of its non-porous polymeric particles includes a hydrophilic shell and a fusible hydrophobic core. Rather, the polymeric particles of Yau have a hydrophobic core and a hydrophobic shell. See, Yau at paragraphs [0013] and [0015]-[0019]. Yau also does not disclose the element of “the colorant-receiving layer . . . configured to have a phase inversion that encapsulates a colorant in the colorant-receiving layer.” The Examiner states that this element is disclosed in Yau but provides no support for this assertion. After reviewing Yau, Applicants respectfully submit that nothing in Yau discloses this element.

Since Yau does not expressly or inherently describe each and every element of claim 1, the anticipation rejection of claim 1 is improper and should be withdrawn.

Claims 2-8 are allowable, *inter alia*, as depending from allowable claim 1.

Claim 2 is further allowable because Yau does not expressly or inherently describe that the colorant-receiving layer is configured to invert from a porous, hydrophilic surface to a continuous layer having a hydrophobic surface. The Examiner relies on paragraphs [0017], [0018], and [0029] and the Examples of Yau as disclosing this element. However, paragraphs [0017] and [0018] merely provide examples of specific polymers used in the core-shell particles and describe how the core-shell particles are prepared. Paragraph [0029] discloses details of the ink-retaining layer, such as that the ink-retaining layer includes organic and inorganic particles and is continuous and coextensive with the image-receiving layer. However, as acknowledged by the Examiner, this ink-retaining layer is analogous to a vehicle sink layer and, therefore, does not constitute a colorant-receiving layer. Office Action dated November 3, 2004, p. 2. The Examples of Yau also do not disclose this element. While the Examples disclose that the ink jet recording element is fusible, the Examples do not disclose that the image-receiving layer of Yau inverts from a porous, hydrophilic surface to a continuous layer having a hydrophobic surface. Therefore, Applicants respectfully submit that the sections of Yau cited by the Examiner do not disclose that the image-receiving layer of Yau is configured to invert from a porous, hydrophilic surface to a continuous layer having a hydrophobic surface.

Claim 3 is further allowable because Yau does not expressly or inherently describe that the colorant-receiving layer is configured to invert from a porous, hydrophilic surface to a

continuous layer having a hydrophobic surface upon exposure to heat, pressure, or combinations thereof. Specifically, Yau does not disclose that its image-receiving layer has a phase inversion from a porous, hydrophilic surface to a continuous layer having a hydrophobic surface.

Claim 4 is further allowable because Yau does not expressly or inherently describe that the colorant-receiving layer is configured to invert from a porous, hydrophilic surface to a continuous layer having a hydrophobic surface upon exposure to a temperature greater than a glass transition temperature of the fusible hydrophobic core. Specifically, Yau does not disclose that its image-receiving layer has a phase inversion from a porous, hydrophilic surface to a continuous layer having a hydrophobic surface.

Claim 5 is further allowable because Yau does not expressly or inherently describe that the colorant is encapsulated in hydrophilic domains in the colorant-receiving layer by the phase inversion.

Claim 7 is further allowable because Yau does not expressly or inherently describe that the hydrophilic shell provides mordant properties to the colorant-receiving layer.

#### Claims 9-15

Yau does not expressly or inherently describe each and every element of claim 9 and, therefore, does not anticipate claim 9. Specifically, Yau does not expressly or inherently describe the element of "providing a fusible print medium comprising . . . a colorant-receiving layer, the colorant-receiving layer having a porous, hydrophilic surface and comprising core-shell polymer particles having a hydrophilic shell and a fusible hydrophobic core." Since Yau discloses that its non-porous polymeric particles include a hydrophobic core and a hydrophobic shell, Yau does not disclose this element of claim 9 for substantially the same reasons as discussed above for claim 1. In addition, Yau does not disclose that its image-receiving layer has a porous, hydrophilic surface.

Since Yau does not expressly or inherently describe each and every element of claim 9, the anticipation rejection of claim 9 is improper and should be withdrawn.

Claims 10-16 are allowable, *inter alia*, as depending from allowable claim 9.

Claim 13 is further allowable because Yau does not expressly or inherently describe that a colorant from the inkjet ink is encapsulated in hydrophilic domains in the colorant-receiving layer.

Claims 14-16 are further allowable because Yau does not expressly or inherently describe that the fusible hydrophobic core is contacted with a coalescing agent, that the coalescing agent is incorporated into the inkjet ink, and that the coalescing agent is selected from the group consisting of 2,2,4-trimethyl-1,3-pentanediol monoisobutyrate, ethylene glycol monobutyl ether, diethylene glycol monobutyl ether, diethylene glycol monomethyl ether, propylene glycol monomethyl ether, and dipropylene glycol monomethyl ether.

Claims 17-19

Yau does not expressly or inherently describe each and every element of claim 17 and, therefore, does not anticipate claim 17. Specifically, Yau does not expressly or inherently describe the elements of “forming a colorant-receiving layer on the vehicle sink layer, the colorant-receiving layer comprising core-shell polymer particles having a hydrophilic shell and a fusible hydrophobic core” and that “the colorant-receiving layer is configured to invert from a porous, hydrophilic surface to a continuous layer having a hydrophobic surface.” Since Yau discloses that its non-porous polymeric particles include a hydrophobic core and a hydrophobic shell, Yau does not disclose the former element for substantially the same reasons as discussed above for claim 1. Yau does not disclose the latter element because Yau does not disclose that its image-receiving layer is configured to invert from a porous, hydrophilic surface to a continuous layer having a hydrophobic surface, as previously discussed in regard to claim 2.

Since Yau does not expressly or inherently describe each and every element of claim 17, the anticipation rejection of claim 17 is improper and should be withdrawn.

Claims 18 and 19 are allowable, *inter alia*, as depending from allowable claim 17.

Anticipation Rejection Based on U.S. Patent Application Publication No. 2002/0155260 A1 to Chen *et al.*

Claims 1-15 and 17-19 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application Publication No. 2002/0155260 A1 to Chen *et al.* (“Chen”). Applicants respectfully traverse this rejection, as hereinafter set forth.

Chen discloses an ink jet recording element having a substrate and an image-receiving layer. Chen at paragraph [0020]. The image-receiving layer is formed from a filler and coated particles, which have a polymeric hard core and a polymeric soft shell. *Id.* at

paragraphs [0020] and [0025]. To improve surface smoothness, the ink jet recording element is calendared or supercalendared before images are printed. *Id.* at paragraph [0042].

Applicants note that Chen does not disclose that its ink jet recording element is fusible.

Rather, Chen discloses that images are printed on the ink jet recording element and directly examined for dry time and image quality. *Id.* at paragraphs [0085]-[0092] and [0126]-[0128].

#### Claims 1-8

Chen does not expressly or inherently describe each and every element of claim 1 and, therefore, does not anticipate claim 1. Specifically, Chen does not expressly or inherently describe the element of “a colorant-receiving layer comprising core-shell polymer particles having a hydrophilic shell and a fusible hydrophobic core.” Chen does not disclose that its coated particles have a hydrophilic shell and a fusible hydrophobic core. While the coated particles in Chen include a shell and a core, Chen discloses that the core is a hard polymeric core and that the shell is a soft polymeric shell. See, Chen at paragraphs [0024]-[0030]. The terms “hard” and “soft” refer to glass transition temperatures of the respective polymers and do not describe whether the polymers are hydrophilic or hydrophobic. Chen also does not disclose whether the specific polymers used as the core and the shell are hydrophilic or hydrophobic.

Chen also does not disclose the element of “the colorant-receiving layer . . . configured to have a phase inversion that encapsulates a colorant in the colorant-receiving layer.” The Examiner states that this element is disclosed in Chen but provides no support for this assertion. Since the ink jet recording element of Chen is not disclosed as being fusible, it is unclear what portion of Chen the Examiner relies on in support of this assertion. After reviewing Chen, Applicants respectfully submit that nothing in Chen discloses this element.

Claims 2-8 are allowable, *inter alia*, as depending from allowable claim 1.

Claim 2 is further allowable because Chen does not expressly or inherently describe that the colorant-receiving layer is configured to invert from a porous, hydrophilic surface to a continuous layer having a hydrophobic surface. The Examiner relies on paragraph [0042] and the Examples of Chen as disclosing this element. Paragraph [0042] discloses that the ink jet recording element is calendared or supercalendared at 65°C to improve surface smoothness. However, calendaring or supercalendaring is not analogous to inverting the image-receiving layer from a porous, hydrophilic surface to a continuous layer having a hydrophobic surface.

Rather, the calendaring or supercalendaring is performed to improve the surface smoothness. If the colorant-receiving layer of the present invention was calendared or supercalendared, as described in Chen, the colorant-receiving layer would not invert from a porous, hydrophilic surface to a continuous layer having a hydrophobic surface. Rather, the surface smoothness of the colorant-receiving layer would improve. Furthermore, the calendaring or supercalendaring of the ink jet recording element in Chen is performed before images are printed and, therefore, is not analogous to inverting the image-receiving layer from a porous, hydrophilic surface to a continuous layer having a hydrophobic surface.

Claim 3 is further allowable because Chen does not expressly or inherently describe that the colorant-receiving layer is configured to invert from a porous, hydrophilic surface to a continuous layer having a hydrophobic surface upon exposure to heat, pressure, or combinations thereof. Specifically, Chen does not disclose that its image-receiving layer has a phase inversion from a porous, hydrophilic surface to a continuous layer having a hydrophobic surface.

Claim 4 is further allowable because Chen does not expressly or inherently describe that the colorant-receiving layer is configured to invert from a porous, hydrophilic surface to a continuous layer having a hydrophobic surface upon exposure to a temperature greater than a glass transition temperature of the fusible hydrophobic core. Specifically, Chen does not disclose that its image-receiving layer has a phase inversion from a porous, hydrophilic surface to a continuous layer having a hydrophobic surface.

Claim 5 is further allowable because Chen does not expressly or inherently describe that the colorant is encapsulated in hydrophilic domains in the colorant-receiving layer by the phase inversion.

Claim 7 is further allowable because Chen does not expressly or inherently describe that the hydrophilic shell provides mordant properties to the colorant-receiving layer.

#### Claims 9-15

Chen does not expressly or inherently describe each and every element of claim 9 and, therefore, does not anticipate claim 9. Specifically, Chen does not expressly or inherently describe the element of "providing a fusible print medium comprising . . . a colorant-receiving layer, the colorant-receiving layer having a porous, hydrophilic surface and comprising core-shell polymer particles having a hydrophilic shell and a fusible hydrophobic

core.” Since Chen discloses that its coated particles have a polymeric hard core and a polymeric soft shell, Chen does not disclose this element for substantially the same reasons as discussed above for claim 1.

Since Chen does not expressly or inherently describe each and every element of claim 9, the anticipation rejection of claim 9 is improper and should be withdrawn.

Claims 10-16 are allowable, *inter alia*, as depending from allowable claim 9.

Claim 13 is further allowable because Chen does not expressly or inherently describe that a colorant from the inkjet ink is encapsulated in hydrophilic domains in the colorant-receiving layer.

Claims 14-16 are further allowable because Chen does not expressly or inherently describe that the fusible hydrophobic core is contacted with a coalescing agent, that the coalescing agent is incorporated into the inkjet ink, and that the coalescing agent is selected from the group consisting of 2,2,4-trimethyl-1,3-pentanediol monoisobutyrate, ethylene glycol monobutyl ether, diethylene glycol monobutyl ether, diethylene glycol monomethyl ether, propylene glycol monomethyl ether, and dipropylene glycol monomethyl ether.

#### Claims 17-19

Chen does not expressly or inherently describe each and every element of claim 17 and, therefore, does not anticipate claim 17. Specifically, Chen does not expressly or inherently describe the elements of “forming a colorant-receiving layer on the vehicle sink layer, the colorant-receiving layer comprising core-shell polymer particles having a hydrophilic shell and a fusible hydrophobic core” and that “the colorant-receiving layer is configured to invert from a porous, hydrophilic surface to a continuous layer having a hydrophobic surface.” Since Chen discloses that its coated particles have a polymeric hard core and a polymeric soft shell, Chen does not disclose this element for substantially the same reasons as discussed above for claim 1. Chen does not disclose the latter element for substantially the same reasons as discussed above for claim 2.

Since Chen does not expressly or inherently describe each and every element of claim 17, the anticipation rejection of claim 17 is improper and should be withdrawn.

Claims 18 and 19 are allowable, *inter alia*, as depending from allowable claim 17.

**35 U.S.C. § 103(a) Obviousness Rejections**

Obviousness Rejection Based on Yau in View of U.S. Patent No. 5,512,619 to DeWacker *et al.*

Claim 16 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Yau in view of U.S. Patent No. 5,512,619 to DeWacker *et al.* ("DeWacker"). Applicants respectfully traverse this rejection, as hereinafter set forth.

M.P.E.P. 706.02(j) sets forth the standard for an obviousness rejection:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

The obviousness rejection of claim 16 is improper because the cited references do not teach or suggest all of the claim limitations and do not provide a motivation to combine to produce the claimed invention.

DeWacker teaches a curing composition for concrete that provides a barrier to water vapor. DeWacker at column 1, lines 42-47. The curing composition includes an acrylic or styrene polymer latex and a polysaccharide. *Id.* at column 1, lines 52-55 and column 2, lines 20-33. A coalescing agent, such as ethylene glycol monobutyl ether acetate, 2,2,4-trimethyl-1,3-pentanediol monoisobutyrate, and dipropylene glycol monobutyl ether, is also present to provide the curing composition as a film. *Id.* at column 2, lines 40-60.

Yau and DeWacker do not teach or suggest all of the limitations of claim 16. Since claim 16 is dependent on claim 9, claim 16 includes all of the limitations of claim 9. Yau does not teach or suggest the limitation of "providing a fusible print medium comprising . . . a colorant-receiving layer, the colorant-receiving layer having a porous, hydrophilic surface and comprising core-shell polymer particles having a hydrophilic shell and a fusible hydrophobic core," as recited in claim 9, for substantially the same reasons as discussed above in the anticipation rejection of claim 9 in light of Yau. DeWacker also does not teach or suggest this limitation and, therefore, does not cure the deficiencies in Yau. As such, claim 16 is allowable, *inter alia*, as depending from allowable claim 9.



Yau and DeWacker also do not provide a motivation to combine to produce the claimed invention. To provide a motivation or suggestion to combine, the prior art or the knowledge of a person of ordinary skill in the art must "suggest the desirability of the combination" or provide "an objective reason to combine the teachings of the references." M.P.E.P. § 2143.01. As acknowledged by the Examiner, Yau does not teach using a coalescing agent and, therefore, necessarily does not suggest the desirability of using a coalescing agent to fuse a colorant-receiving layer of a fusible print medium. Office Action of November 3, 2004, p. 4. DeWacker also does not suggest the desirability of using a coalescing agent to fuse a colorant-receiving layer of a fusible print medium. While DeWacker teaches using the coalescing agent in a curing composition for concrete, DeWacker provides no teaching or suggestion that the coalescing agent can be used in fusing a colorant-receiving layer of a fusible print medium.

The Examiner states that "it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the coalescing agent in to colorant receiving layer of Yau et al. by the aforementioned teaching of DeWacker et al. in order to have uniform continuous film." *Id.* However, this statement by the Examiner is not an objective reason that supports combination of the cited references because the teachings of Yau and DeWacker are related to different, non-analogous arts. After reading the cited references, one of ordinary skill in the art would not be motivated to use a coalescing agent from a curing composition for concrete to fuse a colorant-receiving layer of a fusible print medium.

Since the cited references do not teach or suggest all of the claim limitations and do not provide a motivation to combine, the obviousness rejection of claim 16 is improper and should be withdrawn.

**ENTRY OF AMENDMENTS**

The amendments to claim 1 above should be entered by the Examiner because the amendments are supported by the as-filed specification and drawings and do not add new matter to the application.

**CONCLUSION**

Claims 1-19 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, he is respectfully invited to contact Applicants' undersigned attorney.

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Respectfully submitted,



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